USSR

LYZO, B. G., et al., Osnovaniya, Fundamenty i Mekhanika Gruntov, No 1, 1970, pp 27-28

It was established that starting the hammers with a compression ratio of 15 is ensured when the pile driving is done at 12-14 cm per blow, while with a compression ratio of 20 starting is possible only with 1 or 2 cm per blow. It was found, that in order to secure a good starting quality and high productivity of hammers, it is necessary that the concrete pile weight be greater than the weight of the impacting mass, but not greater than the weight limit characteristic of each type of diesel hammers. Driving techniques used in various soils with various reinforced concrete piles (30x30, 35x35 cm and hollow 600mm in diameter) are described. Orig. art. has: 1 table.

USSR

UDC 621.793.3:669.248

KOTEL'NIKOV, N. V., DMITRIYEVSKIY, A. S.

"Standardization of Baths for Obtaining Metal Films using Hypophosphite"

Tr. Tambov. in-ta khim. mashinostr. (Works of Tambov Institute of Chemical Machine Building), 1971, vyp. 7, pp 110-113 (from RZh-Khimiya, No 6 (II), Jun 72, Abstract No 6L305)

Translation: A study was made of the problems of standardizing the parameters of hypophosphite solutions for chemical nickel plating. It is proposed that the initial growth rate of the thickness of the coating and the density of the complete active mass be used as the standard characteristics.

1/1

1/2 010 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--ELECTRICAL CONDUCTIVITY IN MF-ALF SUB3-H SUB2 O SYSTEMS -U-

AUTHOR-(03)-DMITREVSKIY, G.YE., FROLKOVA, S.A., NAZAROVA, I.N.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(4), 1102-4

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ELECTRIC CONDUCTIVITY, ALUMINUM FLUORIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1110 STEP NO--UR/0078/70/015/004/1102/1104

CIRC ACCESSION NO--AP0123102

UNCLASSIFIED

2/2 010 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0123102

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ELEC. CONDS. OF ALF SUB3-H SUB2 O, MF-H SUB2 O (M EQUALS LI, NA, K, RB, CS), AND MF-ALF SUB3-H SUB2 O SYSTEMS WERE DETD. AT 25, 40, AND 60DEGREES AND CONCN. RANGE OF 0.01-0.40 MOLE-L. (FOR LIF, 0.01-0.04 MOLE-L). AND THE RESULTS ARE PRESENTED GRAPHICALLY OR IN TABLES. THE SOLYS. OF 11NAF.4ALF SUB3, 2KF.ALF SUB3, AND 2RBF.ALF SUB3 IN WATER ARE GIVEN. FACILITY: ODESS. GOS. UNIV., ODESSA, USSR.

UNCLASSIFIED

USSR UDC: 539.12.08

DMITRIYEVSKIY, I. M., KABAKOV, Ya. I., FROLOV, V. V., POTEMKIN, Ye. L.

"Tissue Doses of High-Energy Nucleons (up to 30 GeV)"

Moscow, Atomnaya Energiya, Vol 32, No 6, Jun 72, pp 465-470

Abstract: At the present time there are almost no data on the dose characteristics of high-energy nucleons, which means that there are no scientifically based data on the maximum permissible fluxes for emission of this type. Existing computations are based on the Monte-Carlo method and have been done for nucleons with energies of less than 2 GeV. Extension of methods of this type to higher energies involves difficulties due to the lack of information on the differential characteristics of nuclear interaction between nucleons and the elements of biological tissue. A simple method is proposed in this paper for calculating the depth distribution of absorbed and equivalent doses of high-energy nucleons normally incident on a tissue-equivalent phantom in the form of a plate 30 cm thick with infinite transverse dimensions. The distribution function for shower particles on the phantom is found by a perturbation theory method, using

USSR

DMITRIYEVSKIY, I. M. et al., Atomnaya Energiya, Vol 32, No 6, Jun 72, pp 465-470

the angular and energy distributions of the shower particles in the Trilling formula. The averaged characteristics of nuclear interaction (average multiplicity of secondary particle production, average energy of excitation of residual nuclei, and so forth) are used for conversion from the distribution function found for the shower particles to dose distributions. This approach cuts down appreciably on the volume of computations and is justified in that existing theories of nuclear interaction and experiments give the most reliable data in just this case (i. e., averaged characteristics). Besides, the very concept of dose involves an averaged characteristic. Depth dose distributions are found for protons and neutrons with energies of 3, 5, 10, 20, and 30 GeV. The dose approximately doubles with an energy increase from 3 to 30 GeV. The results agree with calculations of other authors for energies up to 3 GeV.

2/2

USSR

UDC: 53.07/.08+53.001.5

DMITRIYEVSKIY, I. M., SEMENOV, Yu. V., FROLOV, V. V.

"A Method of Determining the Coefficient of Quality and Equivalent Dose in Mixed n-γ Fields"

V sb. Vopr. dozimetrii i zashchity ot izluch. (Problems of Dosimetry and Radiation Shielding--collection of works), Moscow, Atomizdat, vyp. 12, 1971, pp 53-56 (from RZh-Fizika, No 4, Apr 72, Abstract No 4A697)

Translation: The paper describes a method of determining the equivalent dose of neutrons and the quality coefficient of neutron radiation. Three ionization chambers are used: a tissue-equivalent chamber (current $I_{n+\gamma}$); a tissue-equivalent chamber with walls covered on the inside by a thin layer of conductive material containing no hydrogen (current $I_{n'+\gamma}$); and a chamber with aluminum walls (current I_{γ}). A loss of energy of the recoil protons leaving the walls of the chamber takes place in the layer of material which contains no hydrogen. The fraction of energy lost depends on the maximum mean free path of the protons and is thus related to the quality coefficient. It is found that the quantity $(1-\gamma)$ is a linear

1/2

USSR

DMITRIYEVSKIY, I. M. et al., Vopr. dozimetrii i zashchity ot izluch., Moscow, Atomizdat, vyp. 12, 1971, pp 53-56

function of the quality coefficient, where $\gamma = (I_{n+\gamma} - I_{\gamma})/(I_{n'+\gamma} - I_{\gamma})$. The fraction of photon radiation is determined from I_{γ}. The neutron dose D_n is determined from $(I_{n+\gamma} - I_{\gamma})$. The equivalent dose is defined as the product of the neutron dose and the quality coefficient, where the quality coefficient is a function of $(1-\gamma)$. The accuracy of determining the quality coefficient is evaluated at ±30%. The ionization chambers are used in the saturation current mode. The method is distinguished by simplicity and a wide range of measurable dose rates. A. V.

2/2

1/2 023 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--DOSE FIELD CREATED BY PROTON BEAM IN THE IRRADIATED BODY -U-

AUTHOR-(05)-VAYNBERG, M.SH., DMITRIYEVSKIY, I.M., SEMENOV, YU.V., TELKOV, YU.M., FROLOV, V.V.

COUNTRY OF INFO--USSR

SOURCE--MEDITSINSKAYA RADIOLOGIYA, 1970, VOL 15, NR 5, PP 69-73

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--MEDICAL APPARATUS, PROTON RADIATION BIOLOGIC EFFECT, RADIATION DOSAGE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/1959 STEP NO--UR/0241/70/015/005/0069/0073

CIRC ACCESSION NO--AP0120602

UNCLASSIFIED

2/2 023 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0120602

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE METHOD OF CALCULATION OF DOSE FIELDS CREATED IN THE IRRADIATED BODY BY A MEDICAL PROTON BEAM OF THE LABORATORY OF NUCLEAR PROBLEMS OF THE JOINT INSTITUTE FOR NUCLEAR RESEARCH IS DISCUSSED. THE RESULTS OF THE EXPERIMENT CONCERNED WITH THE DETERMINATION OF THE INFLUENCE ON THE DOSE FILED OF HETEROGENEITIES AND CURVATURE OF THE BODY SURFACE ARE GIVEN. FACILITY: OTDEL RADIOLOGII INSTITUTA EKSPERIMENTAL'NOY I KLINICHESKOY ONKOLOGII AMN SSSR. FACILITY: MOSKOVSKIY INZHENERNO-FIZICHESKIY INSTITUT.

UNCLASSIFIED

USSR

UDC: 621.396.67:624.97

BOL'SHUNOV, F. F., VAYYUSHIN, V. N., DUBROVIN, V. F., DMITRIYEVSKIY, N. M., POLINOV, Yu. S., REZNIK, A. P.

"Antenna-Mast Support"

USSR Author's Certificate No 266868, filed 10 Jun 68, published 3 Jul 70 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1B102 P)

Translation: The proposed support consists of interconnected elements, a support framework mounted on a truck platform, an antenna with attached feeder channel, and mechanisms for folding and unfolding the support. To simplify folding and unfolding of the support, the feeder channel is made in the form of individual sections which are securely fastened to the elements of the mast and hinged together.

1/1

USSR

DMITRIYEVSKIY, V. A., MATUSHEVSKIY, V. V.

"Braverman and Dorofeyuk Classification Algorithms in Alpha Language"

Kibernetika i vuz. [Cybernetics in the University -- Collection of Works], Tomsk, Tomsk University Press, No 4, pp 184-194, (Translated from Referativnyy Zhurnal, Kibernetika, No 2, 1972, Abstract No 2 V753 by the author's).

Translation: A brief description is presented of the Braverman and Dorofeyuk classification algorithms and their realization in alpha language.

1/1

DMITRIYEVSKIY, V. A.

JPRS 55126

7 February 1972

THERMODYNAMIC EFFICIENCY OF URANIUM-HEXAFLUORIDE MHD-PLANTS

[Article by L. I. Gutman, V. A. Dmitriyevskiy, and S. D. Tsvetkhum, Odessa Technological Institute, Institute of Atomic Energy imeni I. V. Kurchatov; Moscow, Teplofizika Vysokikh Temperatur, Russian, Vol 9, No 6, November-December 1971, submitted 10 March 1971, pp 1329-1331]

In the work of Soviet and foreign researchers [references 1-4 and others], the possibilities of the use of a gaseous nuclear fuel in a gas reactor and in MHD (magnetohydrodynamic) plants is demonstrated. In these works problems associated with the efficiency and operating features of power plants using uranium hexafluoride are discussed, and also some problems characteristic for individual elements of the plant are analyzed [reference 5]. The possibility of the operation of a reactor and circuit on gaseous uranium hexafluoride has been experimentally checked [reference 1].

In the majority of these works (such as references [2-4], for example), the possibility of using nuclear MHD plants operating on uranium hexafluoride at temperatures providing for ionization of the pure uranium is considered. In accordance with references [6, 7], the ionization potential of uranium is 6,08 electron-volts, and therefore to provide a conductivity of the plasma that is technically feasible it is necessary to achieve temperatures of the order of (7—10) x 10³ Kelvin. The temperature indicated may be essentially decreased by means of introducing additives characterized by a low ionization potential into the flow of the working fluid (such as cesium, for example, which has an ionization potential of 3,89 electron-volts). At the same time, the use of gaseous nuclear fuels makes it possible to obtain quite high gas temperatures in cavity-type reactors, with dimensions acceptable for them, at a low reactor-wall temperature, by means of cooling the wall.

As preliminary calculations have demonstrated, the criticality of the U²³⁵ equal to 10 barns, a degree of enrichment of 0,1, and in this case the diameter of the cavity is two meters, its length 2—3 meters, and the thickness of the beryllium reflector 0,5—0,6 meter.

USSR

Thorium and Uranium Refining

UDC 541.15

DMITRIYEVSKIY, V. A., and MIGACHEV, A. I.

"Radiolysis of Uranium Hexafluoride"

Moscow, Atomnaya Energiya, Vol 30, No 5, May 71, pp 438-443

Abstract: Uranium hexafluoride is the only uranium compound having a relatively large vapor elasticity, thus making it one of the most promising compounds for use in various atomic assemblies. One of the difficulties in using UF_6 is the radiation damage to its molecules, mainly under the action of kinetic energy from fission fragments. The authors first determine this rate of damage per unit of power and then proceed to give the appropriate equations following therefrom. They find that by using a strong oxidizing agent (chlorine trifluoride) the radiation stability of the UF_6 molecules can be ensured.

The main purpose in studying the radiolysis of UF_6 acted on by kinetic energy from fission fragments is to determine the stationary concentrations as a function of initial pressure and strength of the dose as well as to define the magnitude of G more precisely. The strength was computed from the magnitude of the neutron flux and the pressure of the $U^{235}F_6$, and all the values of G for UF_6 acted on by the kinetic energy of the fission frag-

1/2

USSR

DMITRIYEVSKIY, V. A., and MIGACHEV, A. I., Atomnaya Energiya, Vol 30, No 5, May 71, pp 438-443

ments are given in the table.

The authors then carried out a special test to determine the function of stationary concentrations of fluorine with high energy release. They describe the experimental procedures and derive the appropriate equations.

The article contains five figures, fourteen equations, one table, and a bibliography of 8 titles.

2/2

Nuclear Science and Technology

USSR

UDC 621.039.554

DMITRIYEVSKIY, V. A., VOINOV, Ye. M., and TETEL'BAUM, S. D.

"Using Uranium Hexafluoride in Nuclear Energy Equipment"

Moscow, Atomnaya energiya, Vol 29, No 4, Oct 70, pp 251-255

Abstract: A description is given of a nuclear reactor using UF_6 as nuclear fuel, a reactor which was built more than ten years ago in the Soviet Union. A list of the principal parameters and a diagram showing the structure of the reactor in cross section are given. The first experiments were conducted with UF_6 enriched up to 90% by U^{235}. With the maximum power of the reactor limited by biological security to about 1.5 kW, the neutron flow at the reactor center was $2.7 \cdot 10^{10}$ neutrons/$cm^2 \cdot$sec. A table is given comparing this reactor with the "Enrico Fermi" in which the former is found to have approximately the same parameters, but with the definite advantage that it requires much less -- about one-half -- fissionable material loading. There is also a discussion of the possibilities of using the reactor as a basis for a magnetohydrodynamic reactor, and a diagram of such a system is presented. The authors conclude by cautioning that regardless of how attractive the idea of using UF_6 may sound, only one such reactor has been brought to practical realization.

1/1

1/2 008 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--ALLOPHANIZATION OF KAOLINITE -U-

AUTHOR-(02)-TSEKHOVSKIY, YU.G., DMITRIK, A.L.

COUNTRY OF INFO--USSR

SOURCE--LITOL. POLEZ. ISKOP. 1970, (1), 79-85

DATE PUBLISHED-------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--KAOLIN, QUARTZ, CLAY, SOIL STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/0804 STEP NO--UR/9103/70/000/001/0079/0085

CIRC ACCESSION NO--AP0119711

UNCLASSIFIED

2/2 008 UNCLASSIFIED PROCESSING DATE--23OCT7C
CIRC ACCESSION NO--AP0119711
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ACCORDING TO LITERATURE DATA ALLOPHANE CAN BE SYNTHESIZED IN THE SOIL AS A RESULT OF INTERACTION BETWEEN THE SILICIC ACID AND AL HYDROXIDE, STEMMING FROM THE DESTRUCTION OF SOME PRIMARY AND SECONDARY MINERALS. STUDY OF WEATHERED PALEOCENE CHALK OF EAST KAZAKHSTAN HORIZONS INDICATES THAT ALLOPHANE CAN BE FORMED IMMEDIATELY FROM KAOLIN, BY ITS AMORPHIZATION. IN SOILS, INFLUENCED BY ALTERNATING DRY WET PERIODS, THE PROCESS OF ALLOPHANIZATION OF KAOLINITE CAN BE DETECTED BY OPTICAL AND ELECTRON MICROSCOPE METHODS. OBSERVABLE ARE STRONGLY CORRODED QUARTZ GRAINS COVERED WITH OPAL AND A COLLOMORPHIC CLAY SUBSTANCE. DTA OF WEATHERED CLAY SAMPLES SHOWS A DECREASE OF KAOLIN PEAKS AND THE APPEARANCE OF AN ADDNL. ENDOTHERMIC EFFECT AT SIMILAR TO 210DEGREES. IN SUCH SAMPLES THE GRADUAL AMORPHIZATION OF INITIALLY HEXAGONAL KAOLINITE PARTICLES IS OBSERVABLE. HOWEVER, ROUND ALLOPHANE PARTICLES DO NOT REPRESENT THE LAST STAGE OF AMORPHIZATION: THE ELECTRON MICROSCOPE SHOWS THAT ALLOPHANE PARTICLES DECOMP. FURTHER INTO FLOCCULENT AMORPHOUS PARTICLES. THE PRINCIPAL PROCESS IN SUCH SOILS REPRESENTS THE TRANSFORMATION OF SCALY CLAY INTO COLLOMORPHIC DISPERSED ALLOPHANIZED AND DEFORMED AGGREGATES OF AN INDEFINITE STRUCTURE, SHOWING THE CHEM. INSTABILITY OF KAOLIN UNDER THE DESCRIBED CONDITIONS. FACILITY: GEOL. INST., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 669.7.018

AFANAS'YEV, V. K., and DMITRIYEVTSEVA, E. A., Krasnoyarsk Institute of Non-Ferrous Metals

"The Effect of Beryllium Additions on the Microstructure and Decomposition Character of Al-Mg Alloys"

Ordzhonikidze, Izvestiya Vysshikh Uchebnykh Zavedeniy, Tsvetnaya Metallurgiya, No 5, 1972, pp 121-123

Abstract: The effects of small Be additions on the microstructure, the decomposition character, and some other properties of Al-Mg alloys were experimentally investigated on specimens prepared from billets containing 1-13% Mg with 0.05% Be addition and on specimens without Be. Hardened, annealed, and aged specimens and notched specimens subjected to impact loads were tested. A solid solution structure and a viscous intercrystalline failure was found to be characteristic for cast alloys. A brittle failure with separation of the Al_3Mg_2 phase took place at higher Mg content (9-13%). Two typical microstructures were observed, which are characteristic for aged and annealed alloys containing up to 7% Mg and for hardened alloys containing 9-13% Mg. On homogenization of Al-Mg alloys, Be contributes to the formation of inhomogeneous etching sites of dendritic configuration, which is connected

1/2

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200630009-9"

USSR

AFANAS'YEV, V. K., and DMITRIYEVTSEVA, E. A., Ordzhonikidze, Izvestiya Vysshikh Uchebnykh Zavedeniy, Tsvetnaya Metallurgiya, No 5, 1972, pp 121-123

with a significant increase of strength and plasticity characteristics. One figure, one table, four bibliographical references.

2/2

Acc. Nr: AP0044152 Ref. Code: UR 0244

PRIMARY SOURCE: Voprosy Pitaniya, 1970, Vol 29, Nr 1, pp 61-66

CORRELATION BETWEEN THE CONTENT OF POLYCYCLIC CARCINOGENS IN ANIMAL FOOD PRODUCTS AND IN FODDER FOR FARM ANIMALS

N. D. Gorelova, P. P. Dikun, A. P. Dmitrochenko, N. D. Krasnitskaya, A. I. Cherepanova, I. A. Shendrikova (Leningrad)

Summary

Rabbits, pigs, cows, chicken and ducks received during different periods of time (up to one year) fodder containing 3,4-benzpyrene. Animals and poultry were sacrificed 24 hours on termination of the experiment and their tissues and organs analyzed for the benzpyrene content. Meat and separatly fat, and in some instances also liver, blood, etc were, as a rule, taken for analysis. Milk of experimental cows was used for feedings calves, whose meat, liver and blood were then also subjected to examination. Investigations also covered milk of experimental cows and chicken eggs. Control assays were a common practice as well. Meat and other objects under examination either contained no 3,4-benzpyrene at all, or demonstrated merely its traces. Hence, the presence in fodder of relatively large amounts of benzpyrene does not cause this carcinogen to appear in animal food products. Studies were also made as to the amount of intact benzpyrene passed from the organism of rabbits, cows, calves and chicken.

1/1

2

USSR

UDC 621.771.073.8.9

KREKNIN, L.T., SHAVRIN, O.I., TREFILOV, V.G., DMITROV, L.N., BRYNDIN, V.V., and TOKAREV, P.S., Izhevsk Metallurgical Plant

"Thermomechanical Treatment of Cold Rolling Rollers"

Moscow, Metallurg, No 9, Sep 71, pp 31-32

Abstract: A method of high-temperature thermomechanical treatment of cold rolling rollers 20-40 mm in diameter is described. The HRC hardness obtained is not less than 60-62 and the depth of the hardened layer is about 4-5 mm. By varying process parameters, any desired layer depth can be obtained. A comparison of microstructure of samples after thermomechanical treatment at a depth of 5 mm and after conventional high-frequency hardening at 1.5-3 mm shows that in the latter case the martensite needles are smaller.

USSR UDC 620.004.1

BEL'SKIY, Ye. I., DMITROVICH, A. M., LOZHECHNIKOV, Ye. B.

"New Materials in Technology"

Novye Materialy v Tekhnike [English version above], Minsk, Belarus' Press, 1971, 272 pages.

Translation of Annotation: This book presents a description of new materials, increasingly used in the production of industrial products. The basic physical, mechanical and technological properties of high-alloy steels and alloys, rare metals, high-purity materials, polymer, silicates, metal ceramic and mineral ceramic materials are presented.

The book is designed for engineering and technical workers in machine building plants and enterprises in other branches of industry.

TABLE OF CONTENTS

USSR UDC 620.004.1

BEL'SKIY, Ye. I., DMITROVICH, A. M., LOZHECHNIKOV, Ye. B., Novye Materialy v Tekhnike, Minsk, Belarus' Press, 1971, 272 pages.

2/6

USSR UDC 620.004.1

BEL'SKIY, Ye. I., DMITROVICH, A. M., LOZHECHNIKOV, Ye. B., Novye Materialy v Tekhnike, Minsk, Belarus' Press, 1971, 272 pages.

USSR UDC 620.004.1

BEL'SKIY, Ye. I., DMITROVICH, A. M., LOZHECHNIKOV, Ye. B., Novye Materialy v Tekhnike, Minsk, Belarus' Press, 1971, 272 pages.

4/6

USSR UDC 620.004.1

BEL'SKIY, Ye. I., DMITROVICH, A. M., LOZHECHNIKOV, Ye. B., Novye Materialy v Tekhnike, Minsk, Belarus' Press, 1971, 272 pages.

USSR UDC 620.004.1

BEL'SKIY, Ye. I., DMITROVICH, A. M., LOZHECHNIKOV, Ye. B., Novye Materialy v Tekhnike, Minsk, Belarus' Press, 1971, 272 pages

6/6

USSR

DMITROVSKAYA, T. I., MASLOVA, L. M., KARAL'NIK, B. V., and SHAMARDIN, V. A., Chair of Infectious Diseases, Alma Ata Medical Institute and Chair of Infectious Diseases, Alma-Ata Institute for the Advanced Training of Physicians, Department of Immunology, Kazakh Institute of Epidemiology and Microbiology

"The Indirect Hemagglutination Reaction in Diagnosing Protracted and Chronic Forms of Salmonellosis"

Alma-Ata, Zdravookhraneniye Kazakhstana, No 11, 1971, pp 21-23

Abstract: Serological studies were made on 137 persons who presented pathological changes in internal organs following salmonellosis. The indirect hemagglutination reaction(IHR) was considered positive when total antibody activity was not lower than 1:200, and the 7S level was not lower than 1:40. Protracted infection was defined as that lasting up to 3 months; chronic, as that lasting over 3 months. The diagnosis for 30 persons was protracted salmonellosis (stomach disorders); 24 showed positive IHR. Chronic salmonellosis (digestive and hepatobiliary disorders) was diagnosed in 72 persons, 50 of whom showed positive IHR. A relationship was established between clinical manifestations of the disease and positive IHR, even in cases of subclinical or latent forms, where the symptoms were absent or vague. A relationship was also found between the severity of the disease in the acute period, severity of clinical manifestations, and degree of subsequent antibody activity. 1/1

USSR

UDC: 546.3-19'682'87

BATALIN, G. I., KAZIMIROV, V. P. and DMITRUK, B. F., Kiev

"Structure and Electrical Resistance of Molten Aluminum"

Moscow, Izvestiya Akademii nauk SSSR, Metally, No 1, Jan-Feb 72, pp 88-94

Abstract: Described is an x-ray diffraction study of the structure of molten aluminum at 720, 1020, 1400°C. The intensity lines were produced on a diffractometer in molybdenum K_α radiation monochromatized with a pair of Zr-Y differential filters. The maximum statistical calculation error in the experimental intensity lines was 3% for 720 and 1020°C and 4.5% for 1400°C. The results indicate that structurization in molten aluminum occurs on the basis of a blurred face-centered cubic lattice up to 1400°C. The principal changes in the shape of the radial atomic distribution curves are related to the intensification of thermal atomic motion due to increasing temperatures resulting in a gradual leveling of the first and second maxima on the curves. The discrepancy of the computed electrical resistance values from the experimental data is likely to be attributed to the extreme sensitivity of the calculation to both the height and steepness of the first maximum

USSR

BATALIN, G. I., et al, Izvestiya Akademii nauk SSSR, Metally, No 1, Jan-Feb 72, pp 88-94

structural factor as well as to the magnitude and form of the employed pseudopotential. (3 illustrations, 4 tables, 17 bibliographic references).

2/2

USSR

UDC: 621.649

DMITRUK, M. I., RUNOV, A. D., Institute of Atomic Energy, Moscow

"A Vacuum Lock"

Moscow, Pribory i Tekhnika Eksperimenta, No 2, Mar/Apr 72, pp 154-156

Abstract: The article describes a vacuum lock covered by USSR Author's Certificate No 229901 (Byull. izobret., 1968, No 33). The lock is designed for use with the N20T vapor-oil pump. The feed-through opening is 900 mm in diameter with a vertical axis. As a distinguishing feature of the lock, the cover plate is held against the seal by its own weight. In opening and closing the lock, the plate is raised and lowered in a vacuum by a compact hoist connected to the plate through two cables. The hoist and shaft seal are described. The lock is good for approximately three years of operation (more than 3000 opening and closing cycles) and is recommended for extensive use in vacuum technology. The device can be used in conjunction with pumps operating at speeds of 50 000-100 000 l/s. The authors thank G. Ya. Shchepkin for interest in the work. Three figures, one table, bibliography of three titles.

1/1

USSR

UDC 535.215.1:621.319.4

SYTENKO, T.N., DMITRUK, N.L., LYASHENKO, V.I.

"Residual Photoconductivity Of Gallium Arsenide At Cyrogenic Temperatures"

Fiz. i tekhn. poluprovodnikov (Physics And Technology Of Semiconductors), 1971, 5, No 6, pp 1217-1219 (from RZh--Elektronika i yeye primeneniye, No 10, October 1971, Abstract No 10B244)

Translation: The effective capacitance of the structure metal-mica-epoxy resin-n-GaAs was measured at temperatures to 10° K with strong illumination in the intrinsic region of the semiconductor. It is discovered that the initial effective capacitance of a capacitor increases during illumination by 2-5 picofarad/cm^2 and after shutting off the illumination the specimens maintain residual photoconductivity. The properties of the residual photoconductivity are established and an explanation of them is given. 6 ref. N.S.

1/1

USSR

DMITRUK, N.L., ZUYEV, V.A., LYASHENKO, V.I., and TERESHCHENKO, A.K.

"Photoelectric Phenomena in the Near-Surface Region of GaAs"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 4, No 4, 1970, pp 654-662

Abstract: Although the situation usually assumed in investigating photoelectric phenomena in semiconductors that the photocurrent carriers are always concentrated in a quasi-neutral region while the effect of the surface can be described by the rate of surface recombination is typical for Ge, it is extremely rare in GaAs. The existence of highly developed depletion layers close to the GaAs surface must lead to the localization of photocarriers in the near-surface charge region. Hence there is a need for a detailed investigation of this charge region, a task which this article undertakes. It investigates experimentally and computes theoretically the photoconductivity of semiconductors of the GaAs type, taking into account the minority carrier lifetime as a function of the coordinate in the charge region. In doing so, the authors did not assume a quasi-equilibrium situation in this region since it ordinarily does not occur in GaAs. They also consider quasi-monopolar photoconductivity. The experimental method consisted in measuring the steady-state photoconductivity and capacitive photo-emf in the characteristic absorption region of weakly compensated n-type GaAs. The authors express their gratitude to D.I. Zlobin for his assistance in computing the GaAs photoconductivity, and to V.K. Malyutenko and R.O. Litvinov for their comments.

1/1

DMITRYUK, I.N.

JPRS: 58874
7 Dec 72

(3)

UDC: 617.55-036.11-08.368.11:31

COMPOSITION OF PATIENTS WITH ACUTE SURGICAL PATHOLOGY OF ABDOMINAL ORGANS HOSPITALIZED IN KIEV

[Article by Professor P.L. Shupik, I.N. Dmitryuk, Candidate of Medical Sciences, Chair of Social Hygiene and Public Health Organization (headed by Professor P.L. Shupik), Kiev Institute for Advanced Training of Physicians; Moscow, Sovetskoye Zdravookhraneniye, Russian, No 3, 1973, submitted 6 September 1972, pp 24-26]

The study was conducted in nine surgical hospitals of united rayon facilities in Kiev. The composition of those hospitalized with acute surgical pathology of abdominal organs was studied by the world method. The hospital chart served as our basis (form No 3).

We analyzed 14,130 case histories and worked out the structure of morbidity (see Table). Patients in the 20-69 year age group constituted 40.24 percent, 35.02 percent were children 0-14 years of age including 10.76 percent preschool children, 13.04 percent were adolescents and young people 15-19 years of age, 9 percent were patients 50-69 years of age and 2.27 percent were 70 or more years old. The charts did not indicate the age of 0.43 percent of the patients.

Students made up 34.64 percent of the patients (school children, students, students of technikums and vocational schools), 27.47 percent were blue collar workers, 20.03 percent were white collar workers, 5.23 percent were pensioners, and 1.87 percent were housewives. There were 56.06 percent women and 43.94 percent men among the patients.

Patients were admitted within the first 6 hours of onset of illness in 23.37 percent of the cases, between the 6th and 24th hours in 36.63 percent. Late hospitalization (more than 24 hours after onset of illness) was established in 22.27 percent of the cases. In 17.53 percent of the cases it was not possible to determine the time of hospitalization. We found that 21.4 percent of the patients with acute appendicitis were admitted late, and this applied to 25.02 percent of those with intestinal obstruction and 17.28 percent with strangulated hernia.

Structure of morbidity of patients admitted to surgical hospitals with emergency indications (% of total)

Disease	Absolute number of patients	Percentage
Acute appendicitis	10,941	77.44
Exacerbation of chronic appendicitis	1,376	9.74
Gastric ulcer (hemorrhage)	52	0.37
Duodenal ulcer (hemorrhage)	363	2.57
Gastric ulcer (perforation)	122	0.87
Duodenal ulcer (perforation)	40	0.29
Exacerbation of gastric ulcer	52	0.37
Exacerbation of duodenal ulcer	180	1.23
Gastrointestinal bleeding of ulcerative etiology	225	0.89
Intestinal obstruction	237	1.68
Strangulated hernia	642	4.55
totals	14,110	100.00

As we know, coincidence of diagnoses may serve as a criterion of quality of diagnostics and, to some extent, it depends upon the competence of the physicians. With a mean coincidence of diagnoses constituting 85.27 percent, we detected rather frequent inaccuracies in identifying pathology depending on who made the diagnosis. The poorest diagnostic quality was noted in the group of patients who sought care in a polyclinic. Those who were admitted to the hospital by referral of an emergency station physician showed an 86.52 percent coincidence of diagnoses; this applied to 89.57 percent of those who were referred by the physicians of medical and sanitary units, and 83.37 percent of those who were admitted by referral from polyclinic physicians. The same relationship persisted when we compared different nosological groups, although the degree of difference was not the same. Thus, in patients with acute appendicitis hospitalized by referral from emergency station physicians the share of coinciding diagnoses constituted 96.65 percent, for patients referred by polyclinic physicians it was 91.39 percent. In the case of intestinal obstruction the indices were 71.01 and 61.44 percent respectively.

Surgical activity is high in the hospitals of Kiev, but late surgical interventions were noted. Among the patients treated in the nine surgical hospitals 66.68 percent were operated within the 1st 3 hours after admittance, 11.41 percent underwent surgery 6 or more hours after being admitted, i.e. at a late time; 8.75 percent of the patients were discharged without surgical intervention. Of those operated for perforated gastric ulcer, 7.37 percent underwent surgery 6 or more hours after admittance. Within the same time 24 percent of the patients with intestinal obstruction and 25.72 percent of those with strangulated hernia had undergone surgery.

USSR

UDC 666.189.212:535.818.7

DOVGIY, YA.O., BILYY, YA.M., BRILINSKIY, M.I., GNYP, R.G., Dmitryuk, V.P., SIMKIN, YU.YE., STEFANSKIY, I.V. [L'vov State University imeni Ivan Franko]

"Frequency-Contrast Characteristics And Noise Of Fiber Optic Cathodoluminescence Screens"

Tekhnika kino i televideniya, No 4, Apr 1972, pp 54-55

Abstract: Measurements were made of the frequency-contrast characteristics (FCC) and noise of fiber optic cathodoluminescence screens during their excitation by a static electron beam. The measurements were made by methods developed for measuring the FCC and noise of cathodoluminescence screens with a glass substrate. The principal schema of the device used for measuring FCC is described and a comparison is made of FCC measured by the microscopic method and with electron excitation. The additive contribution of the glass fiber substrate to the noise characteristics of the screen is shown. 3 ill. 4 ref.

1/1

Acc. Nr. AP0041538 Abstracting Service: CHEMICAL ABST. 4/70 Ref. Code UR0366

89970y Chemical transformations of α-haloketones. Reaction of ring-substituted phenacyl bromides with sodium methylate. Temnikova, T. I.; Dneprovskii, A. S.; Barashkin, V. D.; Kobzeva, A. I. (Leningrad. Gos. Univ., Leningrad, USSR). *Zh. Org. Khim.* 1970, 6(1), 76–80 (Russ). The reaction of *p*-$XC_6H_4COCH_2Br$ (I) with MeONa in MeOH soln. at ~0° gave 1,3-bis(*p*-X-substituted-phenyl)-4-bromo-2,3-epoxybutan-1-one (II) and *p*-$XC_6H_4COCH_2OH$ (III) (X is H, Cl, or Br). The formation of II proceeds through an intermediate carbanion *p*-$XC_6H_4COC^-HBr$, which condenses with I giving *p*-XC_6H_4-$COCHBrC(O^-)(CH_2Br)C_6H_4X$-*p* (IV). The loss of α-Br^- from IV gives II. The formation of III starts with the addn. of MeO^- to I giving *p*-$XC_4H_4C(O^-)(CH_2Br)OMe$ which is hydrolyzed to *p*-$XC_6H_4C(OMe)_2CH_2OH$ (V) and converted to III. The ketal V (X = Cl) was isolated. The reaction of I (X = Br) with MeONa in $HCONMe_2$ gave $HCO_2CH_2COC_4H_4$-Br-*p*, which was hydrolyzed easily to III (X = Br). CPJR

REEL/FRAME
19751406

USSR

UDC 547.759.3'873.07

DMITRUKHA, V. S., and PEL'KIS, P. S., Institute of Organic Chemistry, Academy of Sciences UkrSSR, Kiev

"Studies in the Series of 1,2,4-Triazino/6,5-b/indole Derivatives. II. Synthesis and Properties of 3-Substituted 1,2,4-Triazacarbazoles"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 6, Jun 72, pp 855-857

Abstract: A simple method for the preparation of isatin-α-semicarbazone (I) was developed, which is analogous to that for the preparation of isatin-α-thiosemicarbazone described in a preceding communication by the authors (Khimiya Geterotsiklicheskikh Soyedineniy, No 6, Jun 72, pp 852-4) and is based on the reaction of the O-methyl ether of isatin with semicarbazide hydrochloride in the presence of an equimolar amount of Na acetate. I is a starting material for the synthesis of 3-hydroxy-1,2,4-triazacarbazole (II). By reacting II with $POCl_3$, 3-chloro-1,2,4-triazacarbazole (III) was prepared for the first time. III was reacted with primary amines NH_2R (R = Ph, C_6H_4OMe-o, CH_2CH_2OH), cyclic amines NHR_2 (R_2 = $-CH_2CH_2CH_2CH_2CH_2-$, $-CH_2CH_2OCH_2CH_2-$), hydrazine hydrate, and phenylhydrazine to prepare the respective 3-substituted 1,2,4-triazacarbazoles.

1/1

USSR UDC 547.751'873.07

DMITRUKHA, V. S., and PEL'KIS, P. S., Institute of Organic Chemistry, Academy of Sciences UkrSSR, Kiev

"Studies in the Series of 1,2,4-Triazino/6,5-b/indole Derivatives. I. Synthesis and Conversions of 3-Mercapto-1,2,4-triazino/6,5-b/indole"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 6, Jun 72, pp 852-854

Abstract: Isatin-2-thiosemicarbazone (I) free of the 3-isomer was prepared by reacting at room temperature the O-methyl ether of isatin with thiosemicarbazide. The pure compound I prepared in this manner could be cyclized to 3-mercapto-1,2,4-triazino/6,5-b/indole (II) by boiling in 1 N NaOH for 30 min instead of heating at 50° for 9 hrs. The following new derivatives of 1,2,4-triazino/6,5-b/indole were prepared. On treatment of II with MeI, the corresponding 3-methylthio compound was obtained. The reaction of II with acetic anhydride led to 2,9-diacetyl-3-thioxo-2,3-dihydro-1,2,4-triazino/6,5-b/indole. By reacting II with hydrazine hydrate, 3-hydrazino-1,2,4-triazino/6,5-b/indole (III) was prepared. The reactions of III with benzaldehyde and p-nitrobenzaldehyde led to 3-benzylidenehydrazino- and 3-(p-nitrobenzylidenehydrazino)-1,2,4-triazino-/6.5-b/indole, respectively. By reacting III with phenyl isothiocyanate, 3-4'-phenylthiosemicarbazido-1,2,4-triazino/6,5-b/indole (IV) was obtained. The reactions

1/2

USSR

DMITRUKHA, V. S. and PEL'KIS, P. S., Khimiya Geterotsiklicheskikh Soyedineniy, No 6, Jun 72, pp 852-854

of III with p-bromophenyl and m-nitrophenyl isothiocyanates led to the respective analogs of IV. The synthesis of derivatives of 1,2,4-triazino/6,5-b/ indole is of interest, because many compounds of this class have a pronounced physiological activity.

2/2

UDC 69.058.8:627.8.084.12

USSR

KHESIN, G. L., Doctor of Technical Sciences and KOSTIN, I. Kh., DMOKHOVSKIY, A. V. and YURENEVA, Ye. V., Candidates of Technical Sciences

"Study of Stresses from Dynamic Effects in Models of Water Engineering Structures by the Method of Photoelasticity"

Moscow, Gidrotekhnicheskoye Stroitel'stvo, No 1, Jan. 1973, pp 23-29.

Abstract: Studies performed by the method of dynamic photoelasticity of the stress state of models of certain water engineering structures under the influence of dynamic loads are described. The method of investigation is briefly described. Conditions of similarity are presented for construction of models, methods of creation of dynamic loads in models are analyzed, plus problems of recording of the wave picture and interpretation of experimental data. Results are presented from studies performed by the method of dynamic photoelasticity and a table is presented illustrating the solution of engineering problems by this method.

1/1

UDC 535.8:666.189.2

USSR

DOVGIY, YA. O., BILYY, YA. M., BRILINSKIY, M. I., GNYP, R. G., DMYTRUK, V. I., SIMKIN, YU. YE.

"Effect of Fiberglass on the Contrast-Frequency Characteristics of Optical Systems"

Leningrad, Optika i Spektroskopiya, Vol XXXIV, No 4, 1973, pp 789-791

Abstract: The quality of the image formed by an optical system is determined by its contrast-frequencycharacteristic or the contrast transmission function T(N). If during transformation of the optical signals their relative intensity (contrast) does not change it is possible to write the equation [F. Perren, Usp. Fiz. Nauk, No 78, 307, 1962]:

$$T_{syst.}(N) = \prod_i T_i(N)$$

($T_i(N)$ is the contrast-frequency characteristic of the i-th element of the system, N is the spatial frequency). A study was made to determine how fiberglass affects the contrast-frequency characteristic of the system. The fiberglass introduces a contrast distortion and violates the above relation. The degree of the distortions depends on the relations of the fiberglass apertures and the other system elements. The conditions most acceptable for measuring the contrast-frequency characteristics of the fiberglass are as follows:

USSR

DOVGIY, YA. O., et al., Optika i Spektroskopiya Vol XXXIV, No 4, 1973, pp 789-791

illumination by a collimated beam of uniform cross section using any receiving objective or diffuse illumination jointly with a narrow-aperture objective ($A_{ob} \leq A_{fiberglass}$).

2/2

UDC 621.375.82

USSR

ARSEN'YEV, V. V., DNEPROVSKIY, V. S., KLYSHKO, D. N., KHATTATOV, V. U.

"Semiconducting Correlators for Picosecond Light Pulses"

V sb. Nelineyn. protsessy v optike (Nonlinear Processes in Optics -- collection of works), vyp. 2, Novosibirsk, 1972, pp 291-301 (from RZh-Fizika, No 12, Dec 72, Abstract No 12D994)

Translation: The possibilities of using semiconductors to measure the parameters of picosecond pulses of laser radiation in particular, their intensity and duration are discussed. The parameters of the Nd-glass laser radiation pulses were measured experimentally in the synchronization mode with respect to two-photon absorption in single $CdS_{0.6}CdSe_{0.4}$ crystals. The measurement errors were evaluated. The advantages of using semiconductors to measure the pulse durations were noted. The bibliography has 14 entries.

1/1

USSR

UDC: 621.378.325

ARSEN'YEV, V. V., DNEPROVSKIY, V. S., and KLYSHKO, D. N.

"Controlling the Duration of a Laser Pulse by Nonlinear Absorption in Semiconductors"

Moscow, Kvantovaya elektronika, No 7, 1972, pp 33-37

Abstract: Results are given of an experimental inquiry into the characteristics of ruby and neodymium lasers with double-photon absorbing elements, semiconductor CdS plates for the ruby and CdSe for the neodymium. A schematic of the experimental equipment is shown. The diameter and length of the ruby rod were 12 and 120 mm respectively and the dimensions for the neodymium rod were 10 and 120 mm. Two IFP-2000 lamps were used for pumping and, along with the active element, were water-cooled. The duration of the pulse was measured by the FEU-22 photomultiplier, matched to the S1-11 oscilloscope, and the radiation energy was controlled by a thermocouple calorimeter. Curves are plotted for the pulse duration of both types of laser as a function of the pumping energy. For a theoretical investigation of laser oscillation characteristics, the authors analyze a system of balanced equations describing the behavior of the inverse population density and the photon

1/2

UDC: 621.378.325

USSR

ARSEN'YEV, V. V., et al, Kvantovaya elektronika, No 7, 1972, pp 33-37

current density in the resonator. They conclude that lasers with smoothly adjustable pulse durations, attained through the use of nonlinear absorbing semiconductors, may be widely used because of the simplicity of their technical realization. Their gratitude to L. A. Sysoyev for preparing the semiconductor specimens, R. V. Khokhlov for explaining the experimental results, and to V. A. Aleshkevich for assisting with the work, is expressed. -

2/2

USSR UDC: 681.142.5

ARSEN'YEV, V. V., DNEPROVSKIY, V. S., KLYSHKO, D. N., and KHATTATOV, V. U.

"A Simple Semiconductor Correlator for Picosecond Light Pulses"

Moscow, Kvantovaya elektronika, No 7, 1972, pp 82-84

Abstract: This brief communication reports the application of two-photon absorbing semiconductors for measuring second radiation moments of ultrashort light pulses of approximately 10^{-12} seconds duration. The moments are designated $\langle S_0^2 \rangle$, where S_0 is the intensity of the incident light on the semiconductor, with the angle brackets indicating averaging over time as well as statistical averaging. The schematic for such a semiconductor correlator, involving a laser, three calorimeters, the semiconductor crystal $CdS_{0.6}CdSe_{0.4}$, is shown. In this schematic, the laser being measured is neodymium, but the same arrangement can be used for measuring a ruby device with a CdS crystal used as the semiconductor. The authors thank R. V. Khokhlov for his explanation of the results and V. S. Fokin for his assistance in conducting the experiments.

1/1

USSR

UDC 621.373.826:621.317.1

ARSEN'YEV, V. V., DNEPROVSKIY, V. S., KLYSHKO, D. N., and KHATTATOV, V. U.

"Semiconductor Correlators for Micromicrosecond Light Pulses"

V sb. Nelineyn. protsessy v optike (Nonlinear Processes in Optics -- collection of works), Novosibirsk, 1972, vyp.2, pp 291-301 (from RZh-Radiotekhnika, No 11, Nov 72, Abstract No 11 A271)

Translation: The authors present the results of studying the parameters of the thermosecond pulses of laser radiation using semiconductor correlators of light. The use of 2-photon absorbing semiconductors makes it possible to measure the moments of emission (Sn) and evaluate pulse duration and the intensity of radiation. The measurements were carried out both with repsect to the direct absorption of radiation by the semiconductor and with respect to the fall in brightness of 2-photon luminescence tracks in the specimens. A.K.

1/1

USSR UDC: 621.396.677

ASHKONAZI, D. Ya., BELYAYEV, V. P., BRODULENKO, G. I., DOBANOV, N. P., RULEV, S. O.

"Starting Losses in SHF Dischargers"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific and Technical Collection. SHF Electronics), 1970, vyp. 9, pp 123-124 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12B98)

Translation: An experimental study was made of the power dissipated in the discharge as a function of the transmitter pulse duration for an electrodeless discharger with double dielectric walls. Measurements were taken on two different wavelengths in the decimeter band; the dischargers had a different height in each of these cases. The dissipated power was measured with an air calorimeter. The results show a high proportion of starting losses (up to half the dissipated power). This means that the process of growing electron concentration in the discharge continues considerably longer than the process of growing current determined by the wave impedance of the waveguide channel. Three illustrations, bibliography of two titles.
N. S.
1/1

USSR
Aluminum and Its Alloys

USSR UDC 669.715

DOBATKIN, V. I., and YELAGIN, V. I.

"Deformable Aluminum Alloys for the National Economy"

Moscow, Tsvetnyye Metally, No 6, Jun 73, pp 6-12

Abstract: Aluminum alloys for general-purpose use are selected on the basis of good corrosion resistance, good weldability, and good strength properties. The A85, A7, A5, and A0 brands generally satisfy these requirements for semifinished goods. The AMr1, AMr2, $AM4_{ts}$, and D12 alloys, in various states of hardening, are recommended for semifinished articles of increased strength. Considering the advantages of joint alloying with magnesium and manganese, the necessity of conducting broad studies on the selection of optimum compositions of D12- and M4-type alloys is emphasized. Heat treatable Al-Mg-Si and Al-Mg-Zn alloys, hardenable on natural cooling on the press groove, are recommended for pressed profiles and tubes. The ultimate strength (up to 45 kg/mm^2) and yield limit (up to 40 kg/mm^2) of the investigated aluminum alloys can be obtained by various treatment methods. Tabulated data of corrosion resistance and strength properties can be used in selecting aluminum alloys for specific purposes. Three tables.
1/1

USSR

UDC 699.71.018.9

DOBATKIN, V. I.

"Nonequilibrium Crystallization of Peritectic System Alloys"

Metalloved. splavov legkikh met. -- V sb. (Physical Metallurgy of Alloys of Light Metals -- collection of works), Moscow, Nauka Press, 1970, pp 100-107 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G199)

Translation: The results of studying nonequilibrium crystallization of aluminum alloys of peritectic systems are discussed. It is experimentally demonstrated that alloys of aluminum with Zr and Cr with a concentration of the latter above peritectic under the conditions of high cooling rates are crystallized in the form of nonhomogeneous solid solutions with enrichment of the central regions of the dendrite with the alloying components and impoverishment of the peripheral zones. The amount of concentration inhomogeneity of the alloy decreases regularly with an increase in the cooling rate. A metastable diagram of state describing the crystallization process at high cooling rates is proposed. There are 8 illustrations, 3 tables and a 9-entry bibliography.

1/1

USSR

UDC 669.716:621.777.02

DOBATKIN, V. I., GRISHKOVETS, Ya. G., and YAKOVLEV, V. I.

"Technological Properties of Metal in Pressing As a Function of the System of the Homogenization of Ingots"

Metallovedeniye Splavov Legkikh Metallov-Sbornik, Moscow, "Nauka", 1970, pp 137-144, resume

Translation: Results are presented on an investigation of the properties of ingots of alloys D16 and Al+1.1 Mn at a temperature of 400°C and on the technological properties of the metal in pressing as a function of the homogenization system. A conclusion is made on the decreased plasticity characteristics of ingots and the worsening of technological parameters in pressing with increasing quantity of finely dispersed particles in the structure. The homogenization system must be selected with regard to obtaining the required structure of pressed products and, at the same time, the achievement of maximum plasticity of the metal by deformation temperature. The authors consider the most promising variant to be the combination of homogenization with heating with pressure working. Five figures, one table, seven bibliographic references.

1/1

USSR

UDC 669.716:621.74.01:548.5

DOBATKIN, V. I.

"Nonequilibrium Crystallization of Alloys of Peritectic Systems"

Metallovedeniye Splavov Legkikh Metallov-Sbornik, Moscow, "Nauka", 1970, pp 100-108, resume

Translation: Results of investigating the nonequilibrium crystallization of aluminum alloys of peritectic systems are discussed. Experiments demonstrated that aluminum alloys with zirconium and chromium, by superperitectic concentration of the latter under conditions of high cooling rates, crystallize in the form of inhomogeneous solid solutions with concentration by alloying components of central dendritic regions and impoverishment of peripheral zones. The volume of the concentration inhomogeneity of the alloy decreases regularly with increasing cooling rate. A metastable structural diagram describing the crystallization process by high cooling rates is suggested. Eight figures, three tables, nine bibliographic references.

1/1

USSR

DOBATKIN, V. I.

UDC 669.018.672:621.746

"Improvement of the Production Techniques of Light Alloy Ingots"

Moscow, Tsvetnyye Metally, No 2, Feb 71, pp 53-58

Translation: Data on the development of the techniques of smelting and billet casting of aluminum, magnesium, and titanium alloys for the last three years are presented. Consideration is given to problems of ingot smelting at electrolysis plants, the vacuuming of smelt, the strengthening of ingots for rolling, manypass teeming, casting in an electromagnetic crystallization agent, and lining smelting.

1/1

1/2 024 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--DECOMPOSITION OF SUPERSATURATED SOLID SOLUTIONS IN GRANULATED ALUMINUM ALLOYS -U-

AUTHOR-(04)-DOBATKIN, V.I., YELAGIN, V.I., FEDOROV, V.M., SIZOVA, R.M.

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK SSSR, IZVESTIIA, METALLY MAR.-APR. 1970, P. 199-205

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CHEMICAL DECOMPOSITION, SOLID SOLUTION, ALUMINUM ALLOY, ZIRCONIUM ALLOY, CHROMIUM ALLOY, VANADIUM ALLOY, TITANIUM ALLOY, MANGANESE ALLOY, MOLYBDENUM ALLOY, CHEMICAL STABILITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/1395 STEP NO--UR/0370/70/000/000/0199/0205

CIRC ACCESSION NO--AP0107868

UNCLASSIFIED

2/2 024 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0107868

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDY OF THE DECOMPOSITION OF ANOMALOUSLY SUPERSATURATED SOLID SOLUTIONS OF GRANULATED ALUMINUM ALLOYS CONTAINING MN, CR, ZR, TI, V, AND MO. IT IS FOUND THAT MICROHARDNESS AND ELECTRICAL RESISTIVITY IN SUPERSATURATED ALUMINUM ALLOYS ARE SUBJECT TO THE SAME RULES AS DESCRIBED PREVIOUSLY BY BARICH AND KOLESNICHENKO (1960). MAXIMUM STRENGTHENING DUE TO THE AGING OF ALLOYS WITH CR AND ZR IS SHOWN TO INCREASE BY A FACTOR OF MORE THAN TWO AS COMPARED WITH NONGRANULATED ALLOYS. IT IS ALSO SHOWN THAT THE STABILITY OF SOLID SOLUTIONS INCREASES WITH INCREASING MELTING POINT OF THE ALLOYING ELEMENTS.

UNCLASSIFIED

1/2 009 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--ATYPICAL CASES OF ANTHRAX AMONG DOMESTIC ANIMALS -U-

AUTHOR-(02)-DOBIN, M.A., EPSTEIN, J.F.

COUNTRY OF INFO--USSR

SOURCE--MONATSHEFTE FUR VETERINARMIDIZIN, 1970, VOL 25, NR 3, PP 97-98

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, AGRICULTURE

TOPIC TAGS--ANTHRAX, ANIMAL HUSBANDRY, COMMERCIAL ANIMAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/0096 STEP NO--GE/0048/70/025/003/0097/0098

CIRC ACCESSION NO--AP0103776

UNCLASSIFIED

2/2 009 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0103776

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ATYPICAL ANTHRAX WAS OBSERVED IN ONE COW, ONE CALF, ONE PIG, AND TWO DOGS. WHILE SUCH CASES ARE VERY RARE, KNOWLEDGE OF THE PATHOLOGICO ANATOMICAL CHANGES IMPLIED IS OF IMPORTANCE FOR DIFFERENTIAL DIAGNOSIS AND BECAUSE OF THE RISK TO HUMANS AND LIVESTOCK LIVING IN THE ENVIRONMENT OF AFFECTED ANIMALS.

UNCLASSIFIED

UDC: 621.315.592

USSR

GOLDOBIN, I. S., DOBKIN, A. S., KURNOSOV, V. D., LAPITSKAYA, G. A., PLESHKOV, A. A., PROZOROV, O. K., RIVLIN, L. A., SOLODKOV, A. F., and SHIL'DYAYEV, V. S.

"Quantum-Optical Integrated Circuits of GaAs"

Leningrad, Fizika i tekhnika poluprovodnikov, Vol. 5, No. 1, 1971, pp 170-172

Abstract: This brief communication offers compact information on quantum-optical logic circuits using integrated GaAs components, based on the stability of multi-coupled semiconductor lasers. Photographs of such laser modules are shown; these have electron-hole junctions formed by the diffusion method, and are made in the form of mesa structures consisting of injector sections with etched dividers 50 microns wide and about 5 microns deep, which isolate regions of nonuniform injection with a transfer resistance of about 15 ohms. The modules contain photoelectric converters, in the form of GaAs photodiodes, which transform optical pulses into electrical pulses with amplitudes of the order of 0.5 volts across a load of 50 ohms. Action of the modules is explained. The author expresses his gratitude to M. F. Stel'makh.

Organ and Tissue Transplantation

USSR

UDC 612.17+612.215.7-089.843

PRIYMAK, A. A., GERASIMENKO, N. I., ANICHKOV, M. N., VIGDORCHIK, I. V., AVERBAKH, M. M., DOBKIN, V. G., DEMIDOV, B. S., VIGDORCHIK, S. I., PAKHOMOVA, Z. I., PETUKHOVA, I. V., VAKSMAN, B. M., GALAYEVA, V. N., and KOZLOV, P. D.

"Use of an Isolated Heart-Lung Preparation in Experimental Transplant Surgery"

Moscow, Voyenno-Meditsinskiy Zhurnal, No 2, 1971, pp 22-23

Abstract: Brief preliminary report on the use of an isolated heart-lung preparation with a working heart in more than 200 experiments on dogs, swine, calves, and sheep. The isolated heart-lung preparation is connected by special cannulas to the peripheral vessels of the recipient's systemic circulation. The isolated lungs inspire an air mixture under hyperventilation conditions. The parameters of electrical activity of the donor's and recipient's hearts, recipient's brain, hemodynamics, biochemical changes in blood, external respiratory function, blood gases, morphology of the tissues of the isolated heart-lung preparation (in various stages of survival) and of the recipient (following biological oxygenation) are investigated. The experiments showed that the physically stabilized heart-lung preparation when used as a biological oxygenator remains viable and ensures good lung and heart function for 10 to 15 hours. It is capable of adjusting automatically to the recipient's circulation and without traumatizing the formed elements

1/2

USSR

PRIYMAK, A. A., et al., Voyenno-Meditsinskiy Zhurnal, No 2, 1971, pp 22-23

of the blood maintains the necessary blood flow rate.

1/2 008 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--PHOTOMETRIC DETERMINATION OF NIOBIUM BY MEANS OF 1,2,PYRIDYLAZO,RESORCINOL -U-

AUTHOR-(03)-KUCHMISTAYA, G.I., DOBKINA, B.M., ELINSON, S.V.

COUNTRY OF INFO--USSR

SOURCE--ZH. ANAL. KHIM.; 25: 742-5(APR 1970)

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--NIOBIUM METAL CHEMICAL ANALYSIS, COMPLEX COMPOUND, METAL PHOTOMETRIC ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0730 STEP NO--UR/0075/70/025/000/0742/0745

CIRC ACCESSION NO--AP0126440

UNCLASSIFIED

2/2 008 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0126440

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A COMPLEX COMPOUND NIOBIUM TARTRATE WITH 1,(2,PYRIDYLAZO) RESORCINOL WAS STUDIED IN A STRONGLY ACID (1 N) SOLUTION. DUE TO THE DIFFERENT IONIC STATES OF THE REAGENT IN A STRONG ACID AND IN A WEAK ACID (PH 5 TO 6) SOLUTION THE NIOBIUM COMPLEX COMPOUNDS FORMED DIFFER IN THEIR MAXIMUM ABSORPTION AND COMPOSITION. A METHOD WAS DEVELOPED FOR DETERMINING MORE THAN 0.01PERCENT OF NIOBIUM IN ORES BY THIS METHOD. FACILITY: STATE SCIENTIFIC RESEARCH AND DESIGN INST. OF RARE METAL INDUSTRY, MOSCOW.

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--04DEC70

1/2 022

TITLE--DIFFERENTIAL PHOTOMETRIC METHOD OF DETERMINING TANTALUM IN CONCENTRATES -U-

AUTHOR-(03)-KUCHMISTAYA, G.I., NADEZHDINA, G.V., DOBKINA, B.M.

COUNTRY OF INFO--USSR

SOURCE--ZAVOD. LAB., 1970, 36, (3), 275-276

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--TANTALUM, PHOTOMETRIC ANALYSIS, QUANTITATIVE ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/0917 STEP NO--UR/0032/70/036/003/0275/0276

CIRC ACCESSION NO--AP0131503

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--04DEC70

2/2 022

CIRC ACCESSION NO--AP0131503

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A DIFFERENTIAL PHOTOCOLORIMETRIC METHOD ORIGINALLY USED FOR DETERMINING 5PERCENT OF TA IN HYDROXIDES IS ADAPTED TO DETERMINING MUCH LARGER QUANTITIES IN INDUSTRIAL CONCENTRATES. THE BASIS OF THE METHOD IS THE EXTRACTION OF A FLUOROTANTALATE METHYL VIOLET COMPLEX WITH BENZENE, MEASURING THE OPTICAL DENSITY OF THE EXTRACTS BY A DIFFERENTIAL PROCEDURE RELATIVE TO A STANDARD SOLUTION. THE EXPECTED ERROR IS 0.5-1PERCENT.

UNCLASSIFIED

1/2 024 UNCLASSIFIED PROCESSING DATE--11DEC70

TITLE--CORROSION IMMUNITY OF LOW TEMPERATURE SOLDERS -U-

AUTHOR-(02)-GUBIN, A.I., DOBKINA, YE.N.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, SVAROCHNOYE PROIZVODSTVO, NO. 6, 1970, PP 43-44

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--COPPER, BRASS, CORROSION RESISTANCE, ELECTRIC EQUIPMENT, TROPICS, SOLDER/(U)POS40 SOLDER, (U)PSR3 SOLDER, (U)PSR2 5 SOLDER, (U)VPR9 SOLDER, (U)VPR6 SOLDER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605041/806 STEP NO--UR/0135/70/000/006/0043/0044

CIRC ACCESSION NO--AP0142716

UNCLASSIFIED

2/2 024 UNCLASSIFIED PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0142716

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TINE LEAD (TYPE POS-40) AND LEAD SILVER (TYPES PSR3, PSR 2.5, AND OTHERS) ALLOYS USED FOR SOLDERING ELECTRICAL JCINTS DO NOT SATISFY THE REQUIREMENTS FOR CORROSION IMMUNITY IN TROPICAL CLIMATES. AFTER TRYING VARIOUS OTHER ALLOYS IN AN EFFORT TO FINC ONE RESISTANT TO CORROSION, THE AUTHORS EXPERIMENTALLY FOUND AN ACCEPTABLE SUBSTITUTE FOR POS4P WHICH USES A TIN BASE (TYPE VPR9) WITH A MELTING POINT OF 220-250DEGREES, ALLOYED WITH SILVER, COPPER, AND ANTIMONY. FROM THE VIEWPOINT OF TECHNICAL CHARACTERISTICS, THERE IS LITTLE DIFFERENCE BETWEEN THE OLD POS40 AND THE MORE RESISTANT VPR9 ALLOYS. OTHER COMPARISONS OF THE TWO ARE SHOWN IN TABULAR FORM, AND TWO PHOTCMICROGRAPHS OF THE VPR9 STRUCTURE ARE PRESENTED. THE VPR6, ANOTHER SOLDERING ALLOY FOR OPERATING IN TROPICAL CLIMATES, IS COMPARED WITH THE PSR3 TYPE AND IS FOUND TO BE MORE RESISTANT TO THE RAVAGES OF LOW AS WELL AS HIGH TEMPERATURES. BOTH THE VPR6 AND VPR9 ARE DESIGNED FOR SOLDERING JOINTS OF COPPER AND BRASS UNDER ALL CLIMATIC CONDITIONS WITHOUT THE NEED FOR PROTECTIVE LACQUER COATINGS. THE VPR6 HAS A SLIGHTLY HIGHER MELTING POINT THAN THE VPR9.

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200630009-9"

USSR

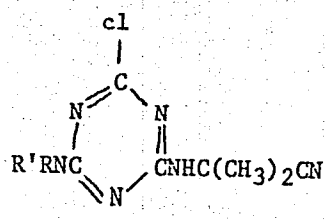
UDC 632.938+547.872/874

DOBLATYAN, V. V., and AVETISYAN, F. V.

"Synthesis of Pesticides: 2-chloro(alkoxy, methylmercapto)-4-alkyl-(dialkyl)-amino-6-α-cyano-α-methyl-ethylamino-symm-triazines"

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vol 25, No 10, 1972, pp 880-885

Abstract: The title compounds were prepared for possible use as herbicides by reacting the α-aminoisobutyronitrile with cyanuric chloride. The product is treated with amine to yield the product. These symm-triazines have the general structure



For the particular derivatives considered: R = CH_3, R' = H; R = C_2H_5, R' = H; R = iso- C_3H_7, R' = H; R = CH_3, R' = CH_3; R = C_2H_5, R' = C_2H_5;

USSR

DOBLATYAN, V. V., and AVETISYAN, F. V., Armyanskiy Khimicheskiy Zhurnal, Vol 55, No 10, 1972, pp 880-885

and R = $(CN)(CH_3)_2$, R' = H. An evaluation of the herbicidal properties of these compounds will be reported in a separate article.

USSR UDC 620.179.14

ZHUKOV, V. K., DOBNER, B. A.

"Analysis of Interference Stability of Two-Channel Vortex-Current Defectoscope"

Defektoskopiya, No 6, 1971, pp 95-99.

ABSTRACT: One method is presented of increasing the interference stability of vortex-current defectoscopes. The interference stability of a two-channel defectoscope is studied when noise is distributed normally. The analysis performed shows that with practically attainable dispersions of transmission factors of circuit elements, the interference stability of a defectoscope to this type of noise can be increased several times, more so, the greater the dispersion of the noise.

1/1

USSR. UDC: 621.317.784

SMOLOV, V. B., ISMAILOV, Sh. Yu., CHERNYAVSKIY, Ye. A., DOBORDZHGINIDZE, D. D.

"An Analog-Digital Watt Meter"

USSR Author's Certificate Number 290226, filed 29/07/69, published 9/04/71 (translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 3, 1972, Abstract No 3 A256 P)

Translation: An analog-digital watt meter for alternating current is suggested, containing a dc voltage-to-code converter with balanced tracking, a programmed distributor, and switches. In order to increase operating speed, the watt meter contains an analog memory unit and a digital-analog multiplier consisting of a register and a digitally controlled voltage divider. The input to the voltage-to-code converter is connected to the common terminal of one switch, one terminal of which is connected to the source of voltage being measured, while the other terminal is connected to the output of the digitally controlled voltage divider. One input of the analog memory is connected to the source of current being measured, the other input is connected to the output of the flip-flop of the voltage-to-code converter. The output of the analog memory is connected to the input of the digitally controlled voltage divider; the discrete output of the voltage-to-code converter

USSR

SMOLOV, V. B., ISMAILOV, Sh. Yu., CHERNYAVSKIY, Ye. A., DOBORDZHGINIDZE, D. D., USSR Author"s Certificate Number 290226, filed 29/07/69, published 9/04/71 (translated from Referativnyy Zhurnal Avtomatika Telemekhanika i Vychislitel'naya Tekhnika, No 3, 1972, Abstract No 3 A256 P)

is connected to the common terminal of the second switch, one terminal of which is connected to the register of the digital-analog multiplier, while the other is connected to the output of the entire device. Two figures.

2/2

USSR

UDC 577.1:615.7/9

DOBORDZHGINIDZE, T. K.

"Gastric Secretion After Prolonged Exposure to Low Concentrations of Dichloroethane"

Sb. tr. N. -i. in-t gigiyeny truda i profzabolevaniy. Gruz SSR (Collected Works of the Scientific Research Institute of Industrial Hygiene and Occupational Disease, Georgian SSR, 1970, Vol 12, pp 200-204 (from RZh-Biologicheskaya Khimiya, No 19, 10 Oct 70, Abstract No 19 F1791 by A. Ignat'yev)

Translation: Digestive disturbances were detected in 90 workers who came in contact with dichloroethane. Acidity was very low in 62.8%; free HCl was absent in 37.7%, and it was extremely low in 31.1%. These changes became more pronounced with increasing length of experience.

1/1

USSR

UDC 577.1:615.7/9

DOBORDZHGINIDZE, T. K.

"Gastric Secretion After Prolonged Exposure to Low Concentrations of Dichloroethane"

Sb. tr. N. -i. in-t gigiyeny truda i profzabolevaniy. Gruz SSR (Collected Works of the Scientific Research Institute of Industrial Hygiene and Occupational Disease, Georgian SSR, 1970, Vol 12, pp 200-204 (from RZh-Biologicheskaya Khimiya, No 19, 10 Oct 70, Abstract No 19 F1791 by A. Ignat'yev)

Translation: Digestive disturbances were detected in 90 workers who came in contact with dichloroethane. Acidity was very low in 62.8%; free HCl was absent in 37.7%, and it was extremely low in 31.1%. These changes became more pronounced with increasing length of experience.

1/1

USSR

UDC 681.332.4

DOBOZHINSKAS, A.B., ZARETSKAS, V-S. S., et al.

"Device for Modeling Impact Systems"

USSR Author's Certificate No. 273535, Filed 23/05/69, Published 14/09/70 (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No. 4, 1971, Abstract No. 4B135P).

Translation: Well-known devices for modeling of impact systems contain integrators for the main equations of motion which are connected to each other as well as a servo system and a control unit consisting of series-connected adder and amplifier with relay characteristics. These devices have low operating speed and limited applicability and are also cumbersome and insufficiently accurate. The device suggested differs as follows: The servo system contains -- between one input of the adder, connected to the output of one of the integrators of the basic equations of motion, and the second input of the same adder -- a series-connected nonlinear unit for determining the speed restoration factor and an analog memory and quantizer. The control devices for the latter, combined with the control inputs of a 4-diode switch connected in parallel to the amplifier with relay characteristics, are connected also directly through an

1/2

USSR UDC 681.332.4

DOBOZHINSKAS, A.B., ZARETSKAS, Y-S, et al., USSR Author's Certificate No. 273535, Filed 23/05/69, Published 14/09/70.

inverter to the output of the control unit. This allows the functional capabilities of the device to be expanded and its accuracy to be increased. 1 fig.

2/2

USSR

UDC 615.849.2:546.296 .015.45:612-085.23

REKKANDT, A. A. and DOBRACHEV, Yu. P., Pyatigorsky Institute of Health Resort Therapy and Physiotherapy

"Influence of Small Doses of Radon Radiation and Its Daughter Products on the Increase of Biomass and Oxygen Consumption Level of the Parent Culture"

Moscow, Voprosy Kurortologii Fizioterapii i Lechebnoy Fizicheskoy Kul'tury, No 3, 1973, pp 243-246

Abstract: Tissue was cultured in media having an activity of 3.6×10^{-5} to 3.6×10^{-2} microcuries/ml (about 0.1 to 100 rads respectively). The total biomass in all cases increased from 15-100% during the first 3 days and all but the most radioactive sample increased during the 4th and 5th days. The data points are widely scattered, however, and show no obvious trend with either time or radiation dose. For some increases in the biomass, the number of cells remained constant. The oxygen consumption showed a more consistent trend: decreasing rapidly on the first day in an amount relative to the radiation dose, continuing the trend the second day, and essentially leveling off or, for the higher doses, increasing slightly such that the values lay rather close together by the 3d day. Although the latter values

1/2

USSR

REKHANDT, A. A. and DOBRACHEV, Yu. P., Voprosy Kurortologii Fizioterapii i Lechebnoy Fizicheskoy Kul'tury, No 3, 1973, pp 243-246

were similar, the trend of decreasing O_2 with increasing radiation continued. The stimulation of the culture is related not only to phase adaptation but also to an increase in the number of dividing cells.

2/2

1/2 026 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--JUMP PHOTOCONDUCTIVITY IN GERMANIUM AS A FUNCTION OF TEMPERATURE -U-

AUTHOR--DOBREGO, V.P.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(4), 814

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--GERMANIUM, PHOTOCONDUCTIVITY, ACTIVATION ENERGY, THERMAL EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0933 STEP NO--UR/0449/70/004/004/0814/0814

CIRC ACCESSION NO--AP0121535

UNCLASSIFIED

2/2 026 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0121535

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TRANSITION FROM JUMP PHOTOCOND. IN GE TO THAT BY FREE CARRIERS AT HIGHER TEMP. IS DISCUSSED. IN DARKNESS, THIS TRANSITION TAKES PLACE AT APPROX. THE SAME TEMP. AS THAT FROM NEG. TO POS. JUMP PHOTOCOND. THE INTER IMPURITY RECOMBINATION PROBABILITY DECREASES WITH DECREASING TEMP., AND ITS ACTIVATION ENERGY IS SIMILAR TO 1 TIMES 10 NEGATIVE PRIME3 EV. FACILITY: FIZ. TEKH. INST. IM. JOFFE. LENINGRAD, USSR.

UNCLASSIFIED

Biochemistry

USSR UDC 547.962

VLADIMIROV, YU. A., DOBRETSOV, G. YE., and BORSHCHEVSKAYA, T. A., Chair of Biophysics, Second State Medical Institute imeni N. I. Pirogov

"Luminescence of Histones in Aqueous Solutions"

Moscow, Molekulyarnaya Biologiya, No 1, 1970, pp 9-15

Abstract: The absorption spectra (250-320 nμ) and luminescence (290-370 nμ) of four histone fractions from calf thymus was studied in aqueous solutions at pH- 2-12 and sodium chloride concentrations of 0-1.5 M. The absorption spectra corresponded to the total absorption of phenylalanine and tyrosine residues; the luminescence spectra were caused by the phenol groups of the histones. The tryptophan-containing nonhistone admixtures made some contribution to the absorption and luminescence of the F1 histone. The quantum yield of luminescence of the phenol groups peaked in 0.8 M NaCl solutions at pH 2 and at 0.13Å for the F1, F2a, and F3 fractions and 0.09Å for the F2b fraction. At alkaline pH, quenching of the luminescence of the F1 histone took place at the same pH values as ionization of 1/2

VLADIMIROV, YU. A., et al., Moscow, Molekulyarnaya Biologiya, No 1, 1970, pp 9-15

the phenol groups, but at lower pH values in the case of the other histones. This difference may have been due to the interaction of the tyrosine residues in the molecules of the F2a, F2b, and F3 histones with the proton acceptors and/or to quenching resulting from the migration of energy between the phenol groups.

Acc. Nr: AP0044688 Ref. Code: UR 0463

PRIMARY SOURCE: Molekulyarnaya Biologiya, 1970, Vol 4, Nr 1, pp 9-16

LUMINESCENCE OF HISTONES IN WATER SOLUTIONS

Vladimirov, Yu. A.; Dobretsov, G. Ye.; Borshchevskaya, T. A.

Second State Moscow High School of Medicine, USSR, Moscow

The absorption spectra (250—320 mμ) and the luminescence spectra (290—370 mμ) of four histone fractions from calf thymus have been studied in water solutions at pH 2—12 and at the concentration of sodium chloride 0—1.5 *M*. The absorption spectra corresponded to the sum of the absorptions of phenylalanine and tyrosine residues; the luminescence was connected with phenol groups of histones. Some traces of tryptophan-containing non-histone protein did contribute in the luminescence and absorption of histone F1. The quantum yield of the luminescence of phenol groups had the maximum value in

1/2

REEL/FRAME
19771419

02

0.8 *M* NaCl solution at pH 2 (0.13 for F1, F2a, F3 and 0.09 for F2b). At alkaline pH the quenching of luminescence of histone F1 and the phenol groups ionization took place at the sample pH values, while for the other fractions the pH values of the maximum quenching of the luminescence were lower than those of ionization. It is possible that this difference is due to interaction of tyrosine residues and proton acceptors in the histone F2a, F2b, F3 molecules and (or) to the quenching caused by energy migration in phenol groups.

2/2

19771420

kc

USSR

"A Compass for Mineral Prospectors"

Russian, Frunze, Sovetskaya Kirgiziya, 15 February 1970, p 2

Abstract: The map, which was compiled jointly by the Institute of Geology of the Kirgiz SSR Academy of Sciences and the Institute of Geology and Geophysics of the Siberian Department of the USSR Academy of Sciences, reflects degrees of change in types of rock depending on temperature and pressure in the earth's crust and on tectonic movements.

The first of its type in Central Asia and Kazakhstan and the most detailed in the Soviet Union, this map takes in a wide expanse of territory, including Kirgiziya, eastern Uzbekistan, southern Kazakhstan and part of Tadzhikistan. It will be part of an analogous all-union map, and will be useful to geologist in locating mineral deposits.

Candidates of geological-mineralogical sciences A. Bakirov and N. L. Dobretsov compiled the map, with essential help from map editors, academician V. S. Sobolev and candidate of geological-mineralogical sciences V. G. Korolev.

1/1

1/3 012 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--CONDITIONS OF DEEPSEATED PETROGENESIS -U-

AUTHOR-(05)-SOBOLEV, V.S., BAKUMENKO, I.T., DOBRETSOV, N.L., SOBOLEV, N.V., KHLESTOV, V.V.

COUNTRY OF INFO--USSR

D

SOURCE--GEOLOGIYA I GEOFIZIKA, 1970, NR 4, PP 24-35

DATE PUBLISHED--------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--MAGMA, IGNEOUS ROCK, UPPER MANTLE, GEOLOGY, GEOPHYSICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1994/0042 STEP NO--UR/0210/70/000/004/0024/0035

CIRC ACCESSION NO--AP0114442

UNCLASSIFIED

2/3 012 UNCLASSIFIED PROCESSING DATE--020CT70

CIRC ACCESSION NO--AP0114442

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SOME ASPECTS OF MAGMA FORMATION IN RELATION WITH WATER REGIME BASED UPON RECENT DATA OBTAINED BY THE AUTHORS CONCERNED TO THE UPPER MANTLE COMPOSITION AND TEMPERATURE OF FORMATION OF IGNEOUS ROCKS ARE CONSIDERED IN THE PAPER. THE STUDY OF XENOLITHS IN KIMBERLITES AND CRYSTALLINE INCLUSIONS IN DIAMONDS PROVES THE GREAT DIFFERENTIATION OF THE UPPER MANTLE FROM PREDOMINANT PERIDOTITES UP TO ECLOGITES AND GROSPYDITES. THE DIAMOND BEARING PERIDOTITES ARE THE DEEPEST ORIGIN XENOLITH'S. THE BIOTITE INCLUSIONS DOESN'T YET FOUND IN DIAMONDS BUT PHLOGOPITE IS PRESENT IN THE MOST UPPER PART OF THE MANTLE ACCORDING SOME DATA, AND KIMBERLITIC MAGMA ITSELF IS FORMED IN WATER PRESENCE. THE DEEP FLUIDES ARE OF COMPLEX COMPOSITION, AND PARTIAL WATER PRESSURE FLUCTUATES WITHIN A WIDE RANGE. DEPENDING ON RELATIVE VALUE OF P H SUB2 O THREE TYPES OF MAGMAS CAN BE DISTINGUISHED: I. THE MOST "DRY" MAGMAS, WHICH CAN BE ERUPTED UP TO THE SURFACE; II. MAGMAS, FORMED AT HIGH P SUBTOTAL AND DECREASED P H SUB2 O WHICH ARE ABLE TO ASCEND; III. MAGMAS FORMED AT LOW P SUBTOTAL AND INCREASED P H SUBW O WHICH ARE RAPIDLY CRYSTALLISED AT DECREASE OF P SUBTOTAL (MIGMATITE FIELD). IT PROVED THAT TRANSVAPORIZATION PLAYS A SIGNIFICANT ROLE, IT DECREASES THE MELTING TEMPERATURE AND IMPROVES THE POSSIBILITY OF MAGMA ASCENDING. THE PROBLEMS OF DRAINAGE OF HOST TERRANES FLUIDS AT MAGMA FORMATION AND FLUIDS RELEASE AT MAGMA CRYSTALLISATION ARE ALSO CONSIDERED. THE SPECIAL DIAPHTHORESIS PHENOMENON IS CONNECTED WITH THESE PROBLEMS.

UNCLASSIFIED

3/3 012 UNCLASSIFIED PROCESSING DATE--020CT70
CIRC ACCESSION NO--AP0114442
ABSTRACT/EXTRACT--THE PROBLEM OF FURTHER STUDY OF VITREOUS AND GAS LIQUID INCLUSIONS IN MINERALS FOR THE PURPOSE OF MORE PRECISE MODEL OF WATER REGIME CONSTRUCTION IN THE EARTH'S CRUST AND MANTLE IS POSED.

89

UNCLASSIFIED

1/3 012 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--DETECTION OF DEEP SEISMICALLY ACTIVE FAULTS ON THE BASIS OF MAGNETOSEISMIC DATA -U-
AUTHOR-(02)-SHCHUKIN, YU.K., DOBREV, T.B.

COUNTRY OF INFO--USSR, BULGARIA

SOURCE--MOSCOW, IZVESTIYA AKADEMII NAUK SSSR, FIZIKA ZEMLI, NO 3, 1970, PP 68-74
DATE PUBLISHED--------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--GEOLOGIC FAULT, MAP, SEISMICITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/1038 STEP NO--UR/0387/70/000/003/0068/0074

CIRC ACCESSION NO--AP0112180
UNCLASSIFIED

2/3 012 UNCLASSIFIED PROCESSING DATE--020CT70

CIRC ACCESSION NO--AP0112180

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A METHOD OF STATISTICAL PROCESSING OF MACROSEISMIC DATA IS PROPOSED FOR IDENTIFYING SEISMICALLY ACTIVE FAULTS AND FOCAL ZONES ASSOCIATED WITH THEM. THE METHOD IS BASED ON THE MAPPING OF SEISMIC LINES REPRESENTING THE DIRECTION OF MAXIMUM RELEASE OF SEISMIC ENERGY AND ALONG WHICH THE MAXIMUM TREMORS OCCUR. FOR SEISMOGEOLOGICAL PURPOSES IT IS OF INTEREST TO CONSIDER THE TOTAL EFFECT OF SEISMIC LINES IN GROUPS, NOT INDIVIDUAL LINES. THE TOTAL EFFECT, LIKE PHYSICAL FIELDS, CAN BE EXPRESSED THROUGH THE FLUX (DENSITY) OF THESE LINES PER UNIT AREA. IT IS ASSUMED THAT DETERMINATION OF THE DENSITY OF SEISMIC LINES CAN PROVIDE INFORMATION ON THE MOST PROBABLE POSITION OF EXTENDED FOCAL ZONES, SEISMICALLY ACTIVE FAULTS AND THE POINTS OF THEIR INTERSECTION. GRIDS WITH GRID SQUARES MEASURING 120 AND 480 KM PRIME2 WERE USED FOR COMPUTING AND COMPILING MAPS OF SEISMIC LINE DENSITY. ON THE INITIAL MAP THE SEISMIC LINES WERE CLASSIFIED AS "WELL EXPRESSED" AND "LESS WELL EXPRESSED" AND ASSIGNED THE WEIGHTS 2 AND 1. NINETEEN OF THE BEST EXPRESSED EXTREMAL ZONES OF SEISMIC LINE DENSITY WERE DETERMINED FOR BULGARIA. THE GENERALIZED SEISMIC LINES CORRELATE WELL WITH GEOLOGICAL GEOPHYSICAL DATA FOR DEEP FAULTS IN THAT COUNTRY AND MAKE POSSIBLE A MORE PRECISE DETERMINATION OF KNOWN AND SOME STILL UNKNOWN DEEP FAULTS. MOST OF THE GENERALIZED SEISMIC LINES SHOW THE DIRECTION AND LENGTH OF SEISMICALLY ACTIVE REGIONAL FAULTS. DEDUCTIONS CAN BE MADE CONCERNING THE INTERRELATIONSHIPS BETWEEN INDIVIDUAL FAULTS DETERMINING THE COMPLEX CONFIGURATION OF MAJOR BLOCKS IN THE EARTH'S CRUST.

UNCLASSIFIED

3/3 012 UNCLASSIFIED PROCESSING DATE--02OCT70
CIRC ACCESSION NO--AP0112180
ABSTRACT/EXTRACT--AN INCREASE IN THE DENSITY OF SEISMIC LINES IS EVIDENTLY ASSOCIATED WITH BRANCHING AND INTERSECTION OF FAULTS IN DIFFERENT SYSTEMS. ALL THIS INFORMATION, TOGETHER WITH VERTICAL SECTIONS, CAN BE USED IN JUDGING THE REAL EXTENT OF A HYPOCENTRAL REGION FOR THE PURPOSES OF SEISMIC REGIONALIZATION. (FIG. 2 IS A MAP OF SEISMIC LINES FOR BULGARIA BASED ON EARTHQUAKES FOR THE YEARS 1891 THROUGH 1961; FIG. 3 IS A CORRESPONDING MAP SHOWING SEISMIC LINE DENSITY WHEN A UNIT AREA OF 120 KM PRIME2 WAS USED; FIG. 4 SHOWS THE SAME, BUT FOR A UNIT AREA OF 500 KM PRIME2 (THERE IS NO SIGNIFICANT DIFFERENCES BETWEEN FIGURES 3 AND 4); FIG. 5 IS A MAP OF FAULTS AND BLOCKS IN BULGARIA; FIG. 6 IS A MAP OF SPECIFIC SEISMIC ENERGY FOR BULGARIA DURING THE YEARS 1900-1962.
FACILITY: MINISTRY OF GEOLOGY USSR, ALL UNION SCIENTIFIC RESEARCH INSTITUTE OF GEOPHYSICAL PROSPECTING METHODS FACILITY: SOFIA HIGHER MINING AND GEOLOGICAL INSTITUTE.

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--11DEC70
TITLE--IMPROVED LIVING CONDITIONS FOR NORTHERN REGIONS OF THE U.S.S.R -U-

AUTHOR--DOBRIDEN, V.

D

COUNTRY OF INFO--USSR

SOURCE--GUDOK, SEPTEMBER 29, 1970, P 4, COLS 5-8

DATE PUBLISHED--29SEP70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PUBLIC HEALTH, GEOGRAPHIC LOCATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/005038/C03 STEP NO--UR/9002/70/000/000/0004/0004

CIRC ACCESSION NO--AN0142278
UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AN0142278

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHOR GIVES THE ACCOUNT OF HIS VISIT TO THE INSTITUTE OF GENERAL AND COMMUNAL HYGIENE IMENI SYSIN AND THE CENTRAL SCIENTIFIC RESEARCH INSTITUTE OF HOUSING, TSENTRAL, NYY NAUCHNO-ISSLEDOVATEL, SKIY INSTITUT PROYEKTIROVANIYA ZHILISHCH. THEY ARE TWO OF SEVERAL OTHER INSTITUTES THAT ARE WORKING TO IMPROVE THE LIVING CONDITIONS IN THE SOVIET FAR NORTH. IN THE FORMER THE AUTHOR OBSERVED AN EXPERIMENT DESIGNED TO DETERMINE MAN'S TOLERANCE TO DIFFERENT COMBINATIONS OF LOW TEMPERATURES AND WIND VELOCITIES. IT HAS BEEN FOUND THAT TEMPERATURES OF MINUS 30, 25, AND 15 C AND RESPECTIVE WIND VELOCITIES OF 1 ONE HALF, 2, AND 3 METERS PER SECOND CAN BE TOLERATED. HIGHER TEMPERATURES OR HIGHER WIND VELOCITIES BECOME TOLERABLE ONLY FOR SHORT PERIODS OF TIME. THE LABORATORY OF CLOTHING HYGIENE, HEADED BY CANDIDATE OF MEDICAL SCIENCES KOLEMA AFANAS, YEVA, OF THE CENTRAL SCIENTIFIC RESEARCH INSTITUTE OF CLOTHING, SEWING, INDUSTRY DESIGNS CLOTHING WHICH CAN MEET THE CLIMATIC REQUIREMENTS OF THE NORTH. THE CENTRAL SCIENTIFIC RESEARCH INSTITUTE OF HOUSING HAS DEVELOPED A HOUSING PROJECT, THE "UDACHNAYA". IT WOULD HOUSE 18,000 PEOPLE IN A COMPLEX CONSISTING OF DWELLING UNITS FOR 2.5 AND 4 THOUSAND PEOPLE CONNECTED BY PASSAGE WAYS WITH ONE ANOTHER AND WITH SERVICE CENTERS. THE "UDACHA" PROJECT IS HEADED BY CHIEF ARCHITECT KIRA KARTASHOVA.

UNCLASSIFIED

Automotive

USSR UDC 656.13.053.2

DOBRIN, A. S., Candidate of Technical Sciences

"Limit Speeds of Motor Vehicles on Curves"

Moscow, Avtomobil'naya Promyshlennost', No 10, Oct 70, pp 5-8

Abstract: Data are presented concerning the lowest speeds on curves at which tipping, skidding, and failure to stay within the prescribed curve occur for a number of tested motor vehicles. Proposals are made concerning the testing methods and evaluation of the stability and controllability of the motor vehicles on curves, as well as concerning appropriate values of the evaluation parameters for motor vehicles of various types. 5 figures, 2 tables.

1/1

USSR

UDC 911.3:616.921.93-002.151(574)

DOBRITS, P. G.

"Clinical and Epidemiological Characteristics and Prophylaxis of Hemorrhagic Fever in the Chimkent Region of the Kazakh SSR"

V sb. Materialy XV Vses. s'ezda epidemiologov, mikrobiologov i infektsionistov, Tezisy Dokl. Ch 1 (Proceedings of the 15th All Union Congress of Epidemiologists, Microbiologists, and Infectious Disease Specialists, Theses Reports, Part 1 -- collection of Works), Moscow, 1970, pp 78-79 (from RZh-Meditsinskaya Geografiya, No 2, Feb 71, Abstract No 2.36.60)

Translation: Central Asian hemorrhagic fever in the territory of Kazakhstan is recorded mostly as a disease of natural foci in the Chimkent district and in the regions adjacent to the city of Chimkent and the Tashkent region of Uzbekistan SSR. A virus etiology is proposed and two transfer mechanisms for the disease: a transmission route (via tick bite) and a contact mechanism (by contact with blood taken from sick persons). The disease is characterized by a scattering of microfoci, seasonal nature, clearly defined clinical duration, and high mortality rate (53.5%)

1/1

Pesticides

USSR

UDC 632.95

DOBRIYANIN, A. D., and UBRANUS, YA.

"Organization of Health Inspection Over the Storage, Use and Transportation of Pesticides in Agriculture in the Brestskaya Oblast"

V sb. V S"yezd gigiyenistov, epidemiologov, mikrobiologov i infektsionistov Belorussii, 1971. Tezisy dokl. (Fifth Congress of Hygienicists, Epidemiologists, Microbiologists and Infectionists of Belorussia, 1971. Summaries of the Reports), Minsk, 1971, pp 70-72 (from RZh-Khimiya, No 1(II), Jan 72, Abstract No 1N372)

Translation: The health and epidemic control service for rayons in the Brestskaya Oblast has taken under observation all industries and organizations which use and distribute pesticides. Dispensary accounting for 1968 shows that there were 1,385 persons working with pesticides. Workers of 10 pest control detachments and 16 bases of the V/O "sel'khoztekhnika" undergo a medical examination twice a year. P. V. Popov.

1/1

USSR

UDC 539.184.26

VDOBYN, YU. A., DOBRODEYEV, N. A.

"Consideration of Hyperfine Level Structure When Calculating a Dielectric Constant of a Gas at Resonance Frequency"

Leningrad, Optika i Sprektroskopiya, Vol 28, No 4, April 1970, pp 814-817

Abstract: This article contains the derivation of equations for calculating the dielectric constant of a gas, taking into account hyperfine splitting. Some specific applications of the expression obtained are presented. In deriving the expression for calculating the dielectric constant, the authors begin with the fact that the dielectric constant of a gas $\varepsilon(\omega)$ is related to the two-part Green function $K^{fm;f_0m_0}_{FM;F_0M_0}(p, k, \omega)$, in the case of considering hyperfine structure, in the following way:

1/4

USSR

VDOBYN, YU. A., et al, Optika i Sprektroskopiya, Vol 28, No 4, April 1970, pp 814-817

$$\varepsilon(\omega)=+\frac{4\pi g^2}{k^2}(2J+1)\sum_{\substack{ff_0mm_0\\FF_0MM_0}}\sum(-1)^{2i+2j-f-f_0}W(JFjf;\ il))W\ (JF_0jf_0;il)\ x$$

$$x\sqrt{(2f\ 1)(2f_0\ 1)}\ (1f\mu m/FM)\ (1f_0\mu_0m_0/F_0M_0)\ (-1)^{f'}k_{-\mu'}k_{\mu_0}\ x$$

$$x\int dpK^{fm;f_0m_0}_{FM;F_0M_0}\ (p,\ k,\ \omega),$$

where fm, FM are the total moments and projects of the ground and excited states of the atoms; i is the nuclear spin: where $f = j + i$; $F = J + i$; W(JFjf; il), (1fμm/FM) are the Racah and Clebsch-Gordan coefficients respectively; $k = \omega/c$.

2/4

USSR

VDOBYN, YU. A., et al, Optika i Sprektroskopiya, Vol 28, No 4, April 1970, pp 814-817

It is pointed out that self-broadening of lines in gases caused by dipole-dipole interaction of excited and unexcited atoms in approximating pair collisions has been investigated earlier. It was demonstrated that even when the doppler broadening is neglected, the path of the line is described with sufficient accuracy by dispersion distribution with the width and shift : where ng^2 and n is the density of the atoms, $g^2 = \frac{\langle J/d/j\rangle^2}{2J+1}$, J and j are the total electron moments of the atoms in the excited and ground states, $\langle J/d/j\rangle$ is the reduced matrix element of the dipole transition moment (the atomic system of units is used). The numerical coefficient in the expressions for Γ and Δ is determined by the total moments of the excited and ground states. For the moment j = 0, 1/2; J = 1, 1/2, 3/2 the corresponding results are presented in earlier papers. These results are obtained without considering hyperfine splitting of the levels. This is correct for light elements, and hyperfine splitting is also small for isotopes with zero nuclear